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## **EXECUTIVE SUMMARY**

In September 1999, based on the recommendations of the Funding Advisory Committee, the South Carolina Commission on Higher Education contracted with MGT of America to conduct a study to “generate accurate and comparative data for determining the educational and general (E & G) needs of public institutions in South Carolina, as compared to public institutions in other states.” The information gathered in the study was used to evaluate the Mission Resource Requirement (MRR) Model, which determines educational and general resource needs for the South Carolina public colleges and universities.

MGT worked with the Funding Advisory Committee to select regional and national peer institutions for each of the 33 South Carolina public colleges and universities; collect data from the peer institutions and from national data sources; and evaluate the Mission Resource Requirement Model. A “peer” is a college or university that is “most like” another college or university based on similarities on a group of variables like mission, size, organization, control, location, mix of programs, and student body characteristics. Colleges and universities use groups of peers to compare their performance on characteristics and/or to request additional funding to support initiatives.

To reach the study objectives, the methodology for this important project encompassed five distinct activities:

- Development of Consensus on Guiding Principles for Selection of Peer Institutions and Review of the Mission Resources Requirement Model
- Selection of Peer Institutions
- Completion of Regional and National Sector and Institutional Peer Data Collection
- Analysis of Data, Comparisons of Funding, Evaluation of the Current Mission Resources Requirement Model, and Development of Recommendations for Any Needed Revisions
- Analysis of Other Issues, Including Sales Tax Payment, Availability of Waivers, and Identification of Any Needed Changes in Current Financial Data Reporting

### **Development of Consensus on Guiding Principles for Selection of Peer Institutions and Review of the Mission Resources Requirement Model**

MGT and the Funding Advisory Committee began the process of identifying peers for each of the South Carolina institutions with development of a set of criteria or variables to use for peer selection. In identifying the peer institutions, the primary selection criterion reflected the mission of higher education institutions in South Carolina as defined by Act 359. The Funding Advisory Committee reviewed possible criteria or variables taken from the Integrated Postsecondary Education Data Surveys (IPEDS) and selected a set of 21 variables, which are shown as Exhibit 1.

## EXHIBIT 1

### VARIABLES/CRITERIA FOR USE IN DETERMINING PEERS

Public Control	Number of doctoral degrees awarded
Carnegie Classification	Land grant status
SREB Classification	Total sponsored research expenditures
Number of headcount students by level and part-time or full-time status	Degrees awarded by field and percent degrees awarded by field
Percent part-time and percent full-time students	Number of first professional degrees awarded
Location in urban/rural/suburban area	Medical school
Number of full-time equivalent students	Highest level degree awarded
Number of degrees awarded	Program mix: Technical, 2 year, Undergraduate only, Undergraduate and masters, Undergraduate, masters, and doctoral
Number of associates degrees awarded	Discipline mix and number of disciplines
Number of bachelor's degrees awarded	Number of staff by category
Number of master's degrees awarded	

Next, the Funding Advisory Committee agreed on a set of guiding principles to assist in evaluation of the Mission Resource Requirement Model. The purpose of the guiding principles is to provide an objective framework for evaluating policy alternatives. The set of guiding principles selected is shown in Exhibit 2.

#### Selection of Peer Institutions

The South Carolina institutions were classified into four sectors: Research Institutions, Four-year Colleges and Universities (the teaching sector), Two-year institutions (branches of the University of South Carolina), and State technical and comprehensive education system. For each sector, a "sample" of institutions was drawn from the list of all public colleges and universities in the U.S. For the research sector, all public institutions classified as Research I or Research II were included. For MUSC, institutions classified as "specialized medical campuses" were added to the list of Research I and II institutions. For the teaching sector, all public Comprehensive I and II campuses were included in the list; and, for the two-year campuses of the University of South Carolina and for the technical colleges, all public, two-year colleges comprised the list.

To develop an initial listing of "peers," MGT used a statistical method called "factor analysis" on the possible peers for each group. Factor analysis identifies underlying variables called "factors" that explain the pattern of correlation within a set of observed variables. Because there were over 100 variables in the data set, factor analysis permitted the reduction in the number of variables to a more manageable set of factors that enabled comparison among colleges or universities.

**EXHIBIT 2**  
**DESIRED CHARACTERISTICS OF A FUNDING MODEL**

<b>Characteristic</b>	<b>Summary Description</b>
<b>A. Equitable</b>	The funding model should provide both <b>horizontal equity</b> (equal treatment of equals) and <b>vertical equity</b> (unequal treatment of unequals) based on size, mission and growth characteristics of the institutions.
<b>B. Adequacy-Driven</b>	The funding model should determine <b>the funding level needed</b> by each institution to fulfill its approved mission.
<b>C. Goal-Based</b>	The funding model should incorporate and <b>reinforce the broad goals of the state</b> for its system of colleges and universities as expressed through approved missions, quality expectations and performance standards.
<b>D. Mission-Sensitive</b>	The funding model should be based on the recognition that <b>different institutional missions</b> (including differences in degree levels, program offerings, student readiness for college success and geographic location) require different rates of funding.
<b>E. Size-Sensitive</b>	The funding model should reflect the impact that relative levels of student enrollment have on funding requirements, including <b>economies of scale</b> .
<b>F. Responsive</b>	The funding model should <b>reflect changes in institutional workloads and missions</b> as well as <b>changing external conditions</b> in measuring the need for resources.
<b>G. Adaptable to Economic Conditions</b>	The funding model should have the <b>capacity to apply under a variety of economic situations</b> , such as when the state appropriations for higher education are increasing, stable or decreasing.
<b>H. Concerned with Stability</b>	The funding model <b>should not permit shifts in funding levels to occur more quickly</b> than institutional managers can reasonably be expected to respond.
<b>I. Simple to Understand</b>	The funding model should <b>effectively communicate</b> to key participants in the state budget process how changes in institutional characteristics and performance and modifications in budget policies will affect funding levels.
<b>J. Adaptable to Special Situations</b>	The funding model should include provisions for supplemental state <b>funding for unique activities</b> that represent significant financial commitments and <b>that are not common</b> across the institutions.
<b>K. Reliant on Valid &amp; Reliable Data</b>	The funding model should rely on <b>data that are appropriate</b> for measuring differences in funding requirements and <b>that can be verified</b> by third parties when necessary.
<b>L. Flexible</b>	The funding model should be used to <b>estimate funding requirements</b> in broad categories; it is not intended for use in creating budget control categories.
<b>M. Incentive-Based</b>	The funding model should provide <b>incentives for institutional effectiveness and efficiency</b> and should not provide any inappropriate incentives for institutional behavior.
<b>N. Balanced</b>	The funding model should achieve a <b>reasonable balance among the sometimes competing requirements</b> of each of the criteria listed above.

The factor analysis developed “factor scores” for each institution for each factor identified in the analysis. A factor analysis that identified 22 factors resulted in each institution having 22 factor scores, one for each of the 22 factors. Then, the factor scores for each institution in South Carolina were compared to the factor scores for each other institution in its “sector” to get distance scores. A distance score is defined as the difference between one campus and another on each factor score. All institutions in the sector or group being compared then were rank ordered based on their total distance score, and arrayed in a list from low to high distance score. The institution with the smallest distance score is the institution most like the South Carolina institution.

Each institution selected 7 or 8 regional **and** 7 or 8 national institutions from those campuses that are most like them, and then 2 or 3 regional and national institutions that are not as similar. The result was a final list of 10 national “peers” and a list of 10 regional “peers” for each institution or group of institutions. Institutions were aware that it is likely that peers used to validate the MRR would then be used in the performance funding part of resource allocation.

Exhibit 3 displays the national and regional peers selected by Clemson University, Medical University of South Carolina, and the University of South Carolina. Exhibit 4 displays the peers for the Citadel, Coastal Carolina University, College of Charleston, Lander University, Francis Marion University, South Carolina State University, University of South Carolina – Aiken, University of South Carolina – Spartanburg, and Winthrop University. Exhibit 5 displays peer lists for the regional campuses of the University of South Carolina; and Exhibit 6 displays peers for the technical colleges.

### **Completion of Regional and National Sector and Institutional Peer Data Collection**

The next step involved design of survey instruments and distribution of the surveys to collect data related to the MRR from each peer institution and from IPEDS. Surveys were sent to the 290 peer institutions. Survey responses were received 141 of the 290 peer institutions, a **49 percent response rate**. A response rate of 25 to 33 percent was expected, given the amount of data requested in the survey and the incompatibility of many institutional data systems with the data required by the MRR.

In addition, revenue data from the FY 1996 – 97 and FY 1997 – 98 IPEDS Finance Surveys were obtained and analyzed. The consultants obtained IPEDS finance data for all but one of the peer institutions, analyzed these data, and made comparisons of funding levels between the South Carolina and peer institutions. These analyses are discussed in the next section.

EXHIBIT 3			
PEER LISTS FOR THE RESEARCH SECTOR			
	Clemson	MUSC	USC
<b>National:</b>			
University of Arizona	1		
University of California – Irvine			1
University of California - San Francisco		1	
University of Colorado Health Science Center		1	
Colorado State University	1		
University of Illinois Chicago			1
University of Illinois Urbana	1		
Indiana University – Bloomington			1
Purdue University	1		
University of Iowa			1
Iowa State University	1		
Kansas State University	1		
University of Massachusetts Amherst	1		
Michigan State University	1		
University of Missouri – Columbia			1
University of Nebraska Lincoln	1		
University of Nebraska Omaha		1	
University of New Mexico			1
State University of New York - Buffalo			1
SUNY Health Science Center Stony Brook		1	
University of Cincinnati (OH)			1
Oregon Health Sciences University		1	
University of Pittsburgh (PA)			1
University of Utah			1
University of Washington			1
Washington State University	1		
<b>Regional:</b>			
Auburn University	1		
University of Arkansas for Medical Sciences		1	
Florida State University			1
University of Florida	1		1
University of Georgia			1
Georgia Institute of Technology	1		
Medical College of Georgia		1	
University of Kentucky	1		1
Louisiana State U – Health Science Center		1	
University of Maryland - Baltimore City		1	
Mississippi State University	1		
University of Mississippi Medical Center		1	
North Carolina State University	1		
University of North Carolina Chapel Hill			1
University of Oklahoma			1
University of Oklahoma Health Science Center		1	
Oklahoma State University	1		
University of Tennessee Main			1
University of Tennessee- Memphis		1	
University of Texas Galveston		1	
Texas A & M University	1		
Virginia Commonwealth University			1
University of Virginia			1
Virginia Polytechnic Institute	1		
West Virginia University	1		

**EXHIBIT 4**  
**PEER LISTS FOR THE TEACHING SECTOR**

Peers	Citadel	Coastal Carolina	C of C	Lander	Francis Marion	SC State	USC – Aiken	Spartan-burg	Winthrop
National:									
Arizona State University - West						1			
Cal Polytechnic - San Luis Obispo									1
Cal State University - San Marcos				1	1	1		1	
Humboldt State (CA)				1					1
Sonoma State			1					1	1
U Colorado – Colorado Springs	1		1						
Eastern Connecticut State U		1					1		
Western Connecticut State						1			
Delaware State University					1				
Governors State (IL)	1								
Western Illinois University						1			
Indiana U – Southeast							1		
U of Northern Iowa									1
Washburn U of Topeka (KS)		1							
U of Southern Maine								1	
Fitchburg State (MA)	1								
Worcester State (MA)							1		
U Michigan – Flint						1	1	1	
Oakland University (MI)									1
Saginaw Valley State (MI)	1								
Bemidji State (MN)							1		
St. Cloud State (MN)	1								
U of Minnesota – Duluth		1				1			
Central Missouri State	1								
Lincoln U (MO)					1		1		
Southeast Missouri State								1	
Truman State (MO)			1	1					1
Montana State U – Billings	1						1		
Chadron State (Neb)							1		
U Nebraska – Omaha	1								
Keene State College (NH)		1							
College of New Jersey	1	1	1	1	1	1			1
Montclair State (NJ)									1
Kean College of New Jersey								1	
Eastern New Mexico U - Main					1				
SUNY – Brockport								1	
SUNY – Buffalo								1	
SUNY – Geneseo			1						1
SUNY – Potsdam				1					
SUNY - tech College at Utica						1			
Bloomsburg (PA)			1						
Cal U of PA		1			1				
Cheyney U of PA				1	1				
Clarion U of PA		1							
E. Stroudsburg U of PA		1							
Edinboro U of PA					1				
Lincoln U of PA				1					
Mansfield U of PA				1	1		1		
Millersville U of PA								1	
PA State – Erie						1			
Shippensburg U of PA					1				
Slippery Rock U of PA	1								
Rhode Island College		1							
U Texas Brownsville					1				
Eastern Washington U								1	
Western Washington U									1
U of Wisconsin – Eau Claire			1						
U of Wisconsin – Green Bay		1							

U of Wisconsin - River Falls				1					
U of Wisconsin - Superior				1	1	1	1		
Auburn - Montgomery (AL)							1	1	
Alabama State				1		1			
U of Montevallo (AL)	1		1	1					
U of North Alabama			1	1					
Arkansas Tech	1								
Henderson State (Ark)							1		
Florida A & M						1			
U of North Florida			1					1	
U of West Florida	1								
Albany State (GA)					1				
Augusta State U (GA)			1	1	1		1		
Armstrong-Atlantic (GA)							1		
Columbus State								1	
GA College and State U			1				1		
GA Southern			1						1
GA Southwestern State					1				
Fort Valley State (GA)	1				1				
Valdosta State (GA)			1						
Kentucky State				1	1	1			
Murray State (KY)				1					1
Western Kentucky									1
LSU - Shreveport							1		
McNeese State (LA)	1								
Nicholls State (LA)	1								
Southern University						1			
Coppin State (MD)					1				
Frostburg State (MD)			1						
Morgan State (MD)	1					1			
Salisbury State (MD)			1		1				
Towson State (MD)			1					1	1
U Md Eastern Shore					1	1			
Mississippi U for Women							1		
Appalachian State (NC)			1						1
NC A & T						1			
NC Central				1					
UNC Asheville			1				1		
UNC Charlotte								1	1
UNC Pembroke				1			1		
U NC - Wilmington			1	1		1			
Western Carolina (NC)				1	1	1			1
Austin Peay State U (TN)	1							1	
Tennessee Tech U	1								
U Tennessee - Chattanooga								1	
U Tennessee - Martin			1					1	
Midwestern State U (TX)								1	
Prairie View A&M (TX)						1		1	
Stephen F. Austin (TX)			1						
Sul Ross State (TX)				1					
Texas A&M - Corpus Christi	1		1						
Texas A&M International				1					
Texas A & M Kingsville						1			
U Houston - Clear Lake (TX)			1						
U Texas - Brownsville				1					
James Madison (VA)			1	1					1
Mary Washington (VA)				1			1		
Norfolk State (VA)			1						
Radford (VA)									1
Longwood College (VA)			1		1		1		
Marshall (WV)				1					1

**EXHIBIT 5**  
**PEER LISTS FOR THE TWO-YEAR CAMPUSES OF THE UNIVERSITY OF SOUTH CAROLINA**

Peers	Beaufort	Lancaster	Salkehatchie	Sumter	Union
National Peers:					
Eastern New Mexico - Roswell				1	
New Mexico State - Alamogordo	1				
New Mexico State - Carlsbad	1	1	1	1	1
New Mexico State - Grants					1
Unew Mexico - Gallop Branch				1	
U New Mexico - Taos			1		
Bowling Grren (OH) - Firelands	1	1		1	
Kent (OH) Astabula	1	1	1		1
Kent (OH) East Liverpool			1		1
Kent (OH) - Geauga					1
Kent (OH) Salem		1	1		1
Kent (OH) - Trumbull Campus				1	
Miami (OH) Middletown				1	
Ohio U- Chillicothe				1	
Ohio U - Eastern	1	1	1		1
Ohio U- Lancaster				1	
Ohio U - Zanesville	1	1	1		
Ohio State - Mansfield				1	
Ohio State - Marion	1	1	1	1	1
Penn State - Beaver	1	1	1		1
Penn State - Berks				1	
Penn State - Dubois				1	
Penn State - Fayette	1				
Penn State - Lehigh Valley					1
Penn State - McKeesport	1	1	1		1
Penn State New Kensington					1
Penn State - Shenango		1			
Penn State - Schuylkill	1				
Penn State - Wilkes-Barre	1	1	1		1
U of Pittsburg - Bradford	1	1	1		
U of Pittsburg - Titusville					1
Regional:					
U South Alabama - Baldwin Cty.	1	1	1	1	1
Arkansas State - Beebe				1	
U Arkansas - Monticello				1	
U Arkansas - Pine Bluff				1	
New College of U South Florida		1		1	
Bainbridge College (GA)	1	1	1		1
East Georgia College	1	1	1		1
Atlanta Metropolitan (GA)	1				
South Georgia State	1	1	1		1
Waycross College (GA)		1	1		1
LSU at Alexandria				1	
LSU at Eunice				1	
Southern U (LA) Shreveport	1	1	1	1	1
Mississippi State - Meridian				1	1
Southwest Missouri - West Plains		1	1		
U North Carolina Pembroke				1	
U VA College at Wise	1	1	1	1	



**EXHIBIT 6**  
**PEER LISTS FOR THE TECHNICAL COLLEGES**

State	Peers	Williamsburg, Denmark	TLC and Chester- field-Marlboro	Greenville Midlands Trident	All Others
<b>Regional:</b>					
<b>AL</b>	Bessemer				1
AL	D. MacArthur	1			
AL	Gadsden State CC			1	
AL	Lawson (Birmingham)	1	1		
DE	Delaware Tech				1
FL	Pensacola Jr. College			1	
GA	Floyd College				1
MD	Cecil CC		1		
MD	Allegany				1
MD	Chesapeake CC	1			
MD	Dundalk CC	1	1		1
MD	Prince Georges CC			1	
MS	Copiah Lincoln	1	1		
MS	Mississippi Gulf Coast CC			1	
NC	Beaufort	1			
NC	Brunswick	1			
NC	Central Piedmont			1	
NC	Davidson				1
NC	Fayetteville Technical CC			1	
NC	Gaston				1
NC	Mayland	1			
NC	Pamlico	1			
NC	Randolph		1		
NC	Rockingham		1		
NC	Sampson	1			
NC	Sandhills		1		1
NC	Wilson		1		
NC	Vance Granville		1		1
OK	Northeastern OK A&M				1
OK	Rose State College			1	
TN	Chattanooga State Tech CC			1	
TX	Alvin				1
TX	Amarillo			1	
TX	Texas State Harlingen		1		1
VA	J Sargeant Reynolds CC			1	
<b>National:</b>					
ID	North Idaho College				1
IA	Iowa Lakes CC				1
IA	Iowa Valley CC				1
IA	North Iowa CC				1
IA	Des Moines CC			1	
KS	Johnson County				1
MA	Berkshire				1
MA	Greenfield		1		1
MA	Massasoit CC			1	
MA	Mt. Wachusett	1			1
MA	Northern Essex CC			1	
MA	Roxbury	1			
MI	Gogebic		1		
MI	Henry Ford CC			1	
MI	West Shore	1			
NE	Southeast CC Area			1	
NE	Western Nebraska		1		
NJ	Hudson	1			

NJ	Salem	1			
NJ	Warren	1			
NM	San Juan - Farmington		1		
NY	Genessee	1			
NY	Herkimer		1		
NY	Hudson Valley CC			1	
NY	Sullivan	1	1		
NY	SUNY - Canton		1		1
NY	SUNY - Delhi		1		
NY	Tompkins-Cortland	1			1
OH	Cuyahoga CC District				1
OH	Lima Technical College				1
OH	Washington State	1			
OR	Lane CC			1	
OR	Treasure Valley		1		
RI	CC of Rhode Island			1	
UT	Snow College				1
WA	Spokane CC			1	
WI	Fox Valley TC			1	
WY	Western Wyoming		1		

### Analysis of Data, Comparisons of Funding, and Evaluation of the Current Mission Resources Requirement Model

The consultants completed evaluation of the Mission Resources Requirement Model in three parts: review of the MRR using the criteria for needs determination models developed by the Funding Advisory Committee; comparisons of funding levels for the peers using data from national sources; and analyses of what the MRR would generate for the peer institutions. In this phase of the study we focused on the “best practices” identified in a review of other states funding models using as a framework the guiding principles developed earlier.

**Evaluation by the Guiding Principles or Criteria and “Best Practices.”** The Funding Advisory Committee agreed that the 14 criteria listed in Exhibit 2 would be used as a component of analysis of the MRR. Each of the sections of the Mission Resources Requirement Model was evaluated using the criteria, and a summary of this analysis is displayed as Exhibit 7.

Using the criteria, the Instruction step of the MRR has several of the desirable characteristics of a good needs determination model, but could be improved to provide additional **horizontal equity**. The Library and Student Services steps do not meet the **size sensitive** criterion because there is no recognition of economies of scale. The Physical Plant step fails the **simplicity** criterion, because there are a number of calculations requiring an extensive database. However, the calculation used by South Carolina has been used as a model Physical Plant guideline by other states, and is considered a “best practice” for Physical Plant funding formulas. **Under the criteria established by the Funding Advisory Committee, the MRR generally meets all the criteria, although there is room for improvement of horizontal and vertical equity, economies of scale, and stability.**

**Comparisons to Peer Funding.** In the second part of the evaluation, the consultants compared funding levels to those of the peer institutions as reported in national surveys for the fiscal years 1996-97 and 1997-98. Data compared South Carolina institutions to both **national** and **regional peers (i.e., institutions in the Southern Regional Education Board states)**. Exhibit 8 summarizes the comparisons by sector.

## EXHIBIT 7

### EVALUATION OF STEPS OF THE MRR BY DESIRED CHARACTERISTICS

Characteristic	Instruction	Research	Public Service	Libraries	Student Services	Physical Plant	Administration
Equitable	<b>Needs improvement</b>	Yes	Yes	Yes	Yes	Yes	Yes
Adequacy-driven	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Goal-Based	Yes						Yes
Mission-Sensitive	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Size-Sensitive	Yes	Yes	Yes	<b>No</b>	<b>No</b>	Yes	Yes
Responsive	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adaptable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Concerned with stability	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Simple to understand	<b>No</b>	Yes	Yes	Yes	Yes	<b>No</b>	Yes
Considers special needs*	The MRR taken in total does provide for consideration of the special needs of institutions.						
Reliant on valid data	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flexible	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Incentive-based		Yes	Yes				
Balanced	The MRR taken in total is balanced.						

In both FY 1996-97 and 1997-98, the South Carolina public higher education institutions received less unrestricted educational and general revenue per full-time equivalent student than did the peers, \$13,700 per FTES for the peers and \$11,272 for South Carolina in FY1996-97; and \$14,170 for the peers and \$11,457 for South Carolina in FY 1997-98. Similarly, the South Carolina institutions received less revenues per student from the combination of state and local appropriations and tuition and fee revenues than did the peers. These data vary by year, by institution and by sector, and are discussed in detail in Section C of the full report.

**Calculation of the MRR Resource Need for Peer Institutions.** In the third and most critical component of the MRR analysis, data from surveys mailed to peer institutions were used to simulate the resource needs of the peer institutions. Exhibit 9 summarizes the MRR calculations for peers of each sector.

The exhibits related to the MRR resource need for the peers display actual Education and General (E & G) revenues as a percent of the MRR calculation as well as appropriations and tuition and fee revenues as a percent of the MRR amounts. A percentage less than 100 indicates that the MRR at full funding would calculate a resource requirement that exceeds the revenues that the institution actually received. Similarly, a percentage greater than 100 indicates that the MRR calculates an amount that would provide less revenues than the institution actually received.

Exhibit 8 goes on this page, and is in an excel file called “Exec Summary Exh 7” in the folder J:/1443/report/

**EXHIBIT 9**  
**MRR RESOURCE NEED CALCULATION FOR THE PEER INSTITUTIONS**  
**RESEARCH UNIVERSITIES AND OTHER SECTORS SUMMARY**

MRR Components	Clemson Peers	MUSC Peers	USC Peers	Teaching Sector	USC Two-Year Sector	Technical College Sector
Number of Institutions Included	10	6	9	49	17	34
Research	42,972,035	17,125,118	34,631,416	690,165	5,189	12,505
Public Service	4,570,681	2,479,233	8,898,303	471,337	10,381	31,136
Libraries	16,501,130	5,192,061	19,547,974	2,545,369	282,281	488,555
Student Services	19,610,471	2,581,327	21,796,129	5,445,011	689,102	2,699,712
Administration	72,614,369	32,660,227	80,669,968	11,355,694	1,695,248	4,379,185
Physical Plant	43,097,486	24,296,178	47,336,965	7,317,369	948,461	0
Subtotal: Other E & G Costs	199,366,172	84,334,144	212,880,755	27,824,946	3,630,662	7,611,093
Other E & G Costs	199,366,172	84,334,144	212,880,755	27,824,946	3,630,662	7,611,093
Add: Instruction	163,705,672	78,966,992	190,469,084	29,357,123	4,845,576	12,638,157
Total E & G Costs	363,071,844	163,301,136	403,349,839	57,182,069	8,476,238	20,249,250
Actual E & G Revenues	405,707,788	164,408,719	411,583,590	56,276,197	7,631,004	17,866,928
Tuition and Fees and Approps.	331,774,902	138,088,193	342,368,787	52,558,482	7,247,766	16,951,745
Actual E & G Revenues as a % of MRR Amount	111.74	100.68	102.04	98.42	90.03	88.24
Tuition and Fees and Approps.as a % of MRR	91.38	84.56	84.88	91.91	85.51	83.72

For the peers of the technical college sector as a whole, the MRR calculates an amount of resource need that, on average, is greater than the peer institutions receive from unrestricted Educational and General Revenues and from the combination of state and local appropriations and tuition revenues. When taken with the information in the prior step, indicating that South Carolina technical colleges received less revenue than the peers, the data suggest that the MRR calculates a resource need for the technical college sector that would provide sufficient resources to provide services, **if the MRR were fully funded**. The data for specific technical colleges suggest that an economy of scale factor or factors may be needed in the MRR to provide sufficient revenues for small colleges. Differences in revenues per student between the small and middle-sized technical colleges and their peers appear to be related to the local contribution. Changes to the MRR will not correct this local problem, but would introduce inequities into the MRR.

For the two-year branch campuses of the University of South Carolina, the MRR model calculates a resource requirement that is equivalent to the amounts received by the peers, if the MRR were to be fully-funded. However, there are differences among the campuses within the sector that appear to relate to economies of scale.

On average for the peer institutions of the teaching sector, the MRR calculates a resource requirement that is more than actual unrestricted Education and General revenues, and more than revenues received from a combination of tuition revenues and state appropriations. These results vary somewhat for each university within the sector, but for each university's peers, on average, the MRR calculates a resource need that exceeds what the peers currently receive from appropriations and tuition revenues.

For each of the institutions in the research sector, the MRR calculates an amount that would be adequate to fund the MRR components, if the MRR were fully funded. The findings also suggest that the peer institutions receive more revenues than the South Carolina institutions from sources other than tuition and fees and state appropriations.

**Analysis of the MRR.** The final activity in this stage of the study was development of recommendations for any necessary revisions to the Mission Resources Requirement Model, and involves the synthesis of the findings and analyses of the prior activities. The revisions detailed below are related primarily to changes that would provide a more accurate reflection of the needs of higher education institutions in South Carolina.

### **Step 1. Instruction**

The Instruction step of the MRR needs to have more **horizontal equity** (equal treatment of equals) in the student/faculty ratio calculation. The MRR has different student/faculty ratios for the remedial level (15:1 in the teaching and two-year sectors and 14:1 in the technical college sector). At the undergraduate level, the student/faculty ratios for each discipline vary by sector.

To provide **horizontal equity** the ratios for the same academic discipline should be the same across sectors, because the epistemology at these levels usually is the same. In addition, from the perspective of the State, a student enrolled in a lower division English class should have the same student/faculty ratio applied whether that student takes the

class at a technical college, a two-year branch of the USC, one of the teaching universities, or at a research university.

**Steps 2 and 3. Research and Public Service.** No change recommended.

**Steps 4 and 5. Libraries and Student Services**

During visits to the campuses, many campus administrators voiced concern over the use of full-time equivalent students in one part of the Student Services and Library steps, and the use of headcount students in the other. There was general consensus that the calculation should be based on headcount data in both parts of the calculations.

Need for library and student services is more dependent on the number of headcount students, rather than the number of full-time equivalent students. If four students, each taking one three-credit course, use the library, it has four times the physical impact of one student taking four three-credit courses, although the FTE would be the same in either case. Similarly, it takes four times as many staff resources to register, or provide health services, or counsel, the four students as it does the one student.

Both of the Library and Student Services steps rely on complex data that are several years out-of-date. This concern will be less when the National Center for Education Statistics has its IPEDS database available for peer comparisons on its Internet site. The site is in beta testing now, and should be ready by 2001. Current finance data (i.e., for the prior fiscal year) will be available on the Internet site.

Neither the Library or Student Services steps include recognition of economies of scale. Cost studies in higher education have demonstrated that the marginal cost of providing student services and library services is less than the average cost; in other words, certain economies of scale exist. To reflect more accurately the differences in need for smaller campuses in South Carolina, the library and student services calculation could benefit from the re-introduction of a factor that recognizes economy of scale.

**Step 6. Physical Plant**

The Physical Plant calculations fail the ***simplicity*** criterion, and are extremely difficult to explain to legislators and other policy-makers. The Plant calculation does provide for both ***horizontal and vertical equity*** and recognizes differences in the physical makeup, buildings, and location of the campuses.

The complexity of the physical plant calculations requires maintenance of a large database, and requires additional staff time to verify all the information collected on this item. However, South Carolina institutions have developed and maintain the complex databases needed to provide horizontal and vertical equity. In addition, other states recognize this component of the MRR as a "best practice." Therefore, at this time **No changes are recommended for the Physical Plant step.**

**Steps 7 and 8: Administration and Total Education and General Cost.**

No recommended changes.

## **Step 9: Revenue Deduction**

During campus visits, universities voiced unanimous concern over the revenue deduction step of the MRR. The MRR calculates the level of resources a campus needs to operate an adequate program for the mix of students enrolled, the discipline mix, and the physical plant, to carry out the campus' unique mission. Providing the level of resources should be a burden that is shared by the State and the students.

However, the State of South Carolina and the Commission determined that it is a statewide goal to keep the cost of college low to encourage access to higher education for all students who can benefit. These two goals can come into conflict when State resources are limited and appropriations for the operating expenditures of higher education are correspondingly limited. To provide a high quality education, and the market basket of goods and services that the citizens of the State appear to desire, institutions have increased tuition and fees so that students can share with the State the burden of the cost of higher education.

If the State share of cost is determined to be 80 or 85 percent for in-state students, then the resident student share should be 15 or 20 percent of the "cost," where "cost" is determined by dividing the Total Education and General Cost in Step 8 of the MRR by the number of full-time equivalent students (including all students). This calculation is made in the current MRR.

If the total amount of revenues that the institution receives from resident tuition and fees exceeds the calculated resident student "share," then the institution is permitted to keep revenues up to 5 percent more than the student share. Beginning in 2001-2002, any revenue received from resident tuition and fees that exceeds 105 percent of the revenue requirement will be deducted from the MRR calculated amount. The deduction of revenues appears to have been intended to provide an incentive for the institutions to keep costs low and provide access for South Carolina residents.

State law requires that non-resident students pay 100 percent of their Total Education and General Cost, calculated as the average MRR amount per student by level of the student (in Step 8 of the MRR). Commission staff members calculate the Education and General Cost per student amount separately for undergraduate, masters, doctoral, and medical students. The calculated amount for the Education and General Cost per masters, doctoral, or medical student has been significantly more than actual tuition charged students. Because of this difference, an amount greater than the institutions receive in revenues from graduate students almost always is deducted in Step 9 of the MRR calculation. The deduction results in penalties for institutions with graduate enrollments. According to the MRR explanation provided by the Commission, the amount to be deducted is adjusted by the number of approved non-resident tuition waivers.

However, if an institution receives more than 100 percent of this amount in non-resident tuition and fees, the institution is not "penalized" by having any excess amounts deducted in Step 9 of the MRR to determine state appropriations needs. This appears to be consistent with the State policy of charging non-resident students at least 100 percent of cost, and also provides an incentive to the institutions to enroll non-resident students.



The current calculations “penalize” institutions whose revenues from resident students are more than 105 percent of target revenue by subtracting those dollars in Step 9 of the MRR. This appears to be consistent with the State policy goal of increasing access, but does appear to be in opposition to the criterion *incentive-based*.

If an institution is fortunate enough to attract large numbers of out-of-state students, the institution has the option of reducing increases in resident tuition by increasing non-resident tuition to levels above the amount calculated in Step 9 of the MRR. Not all institutions are fortunate enough to be in these circumstances.

In recent years, the MRR has not been fully funded. That is, state appropriations have not matched the amount of resource need calculated by the MRR model. Institutions have responded to the need for additional resources by raising tuition. But, when an institution raises resident tuition to a level that generates amounts in excess of 105 percent of the revenue target, the institution does not receive the benefit of increased tuition revenues.

Because of these issues, changes delineated below are recommended for the revenue deduction step.

#### **Analysis of Other Issues, Including Sales Tax Payment, Availability of Waivers, and Identification of Any Needed Changes in Current Financial Data Reporting**

The Funding Advisory Committee asked that MGT also examine other issues, including university payment of sales taxes, availability of waivers, and current financial data reporting.

**Sales Tax Payments.** Over 90 percent of the peer institutions reported that they do not pay sales tax on goods purchased. Since South Carolina institutions must pay sales taxes, even with the same dollar resources, the peers are able to provide additional services. It is estimated that the South Carolina public colleges and universities paid almost \$35 million in sales taxes during FY 1998-99. This amount would have purchased significantly more services for the citizens of South Carolina, had the funds been available.

**Availability of Waivers.** On average, peers of each of the sectors reported that they had more waivers available (relative to enrollment) to distribute to students. For the research sector, the average dollar value of the waivers awarded exceeded that awarded by the South Carolina institutions. This latter finding may be a function of the tuition and fees charged by peers, which may be more than those charged by South Carolina institutions.

**Consistency of Current Financial Data Reporting.** On the IPEDS financial surveys, institutions are reporting certain revenues differently. For example, library fines are reported as “Other Revenues” at one institution, “Sales and Services of Educational Activities” at a second, and as “Tuition and Fees” at a third. Athletic ticket sales are reported as “Auxiliary Revenues” by one institution and as “Tuition and Fees” at another. The South Carolina institutions consistently report special state appropriations for financial aid as “Restricted State Appropriations” but the peer institutions do not report

equivalent financial aid as restricted funds. These inconsistencies and others on the expenditure side of the financial report should be removed.

## **Recommendations**

There are several changes to the Mission Resource Requirement Model, sales tax payments, waiver availability, and financial information reporting that are recommended.

**Recommendation 1: Change the student/faculty ratios at the remedial and undergraduate levels for the two-year, teaching, and research sectors so that the ratios are the same as those for the technical college sector.**

Adoption of this recommendation will increase the horizontal equity of the MRR, and also will make the model simpler.

**Recommendation 2: Modify Steps 4 and 5 (Libraries and Student Services) by using student headcount data instead of full-time equivalent students for all calculations in the steps.**

Adoption of this recommendation makes the MRR simpler and easier to understand. In addition, the modification will meet the criteria for reliability and validity of data.

**Recommendation 3: Modify Steps 4 and 5 by the introduction of economies of scale factors.**

This could be accomplished by differentiating the dollar amount allocated per student, based on total enrollments. For headcount enrollment, up to 1,500, the maximum dollar amount per student would be allocated, based on the average figures from the IPEDS data. Then, that dollar amount per student would be lowered by 2 percent for the next 3,500, and by 4 percent for the next 5,000. The lowest amount per student would be allocated when enrollment exceeds 10,000, 6 percent less than the base. The head count break points in the allocation recommendation were developed using FY96, FY97, and FY98 IPEDS financial data for all public institutions. An example follows, using a hypothetical dollar amount. Actual allocation amounts would be determined using the average amounts per headcount student expended for Student Services and for Libraries from the IPEDS data, like the current MRR.

### **Example of a Student Services or Library Allocation Recognizing Economies of Scale**

	Allocation amount per student
<i>For the first 1,500 headcount students</i>	<i>\$100</i>
<i>For 1,501 to 5,000 headcount students</i>	<i>\$ 98</i>
<i>For 5,001 to 10,000 headcount students</i>	<i>\$ 96</i>
<i>For 10,001 or more headcount students</i>	<i>\$ 94</i>

**Recommendation 4: Modify Step 9 of the MRR calculation by modifying policy to permit institutions to retain the first 10 percent of revenues over target revenues for resident students.**

Without any changes to state law to permit “charging” of less than 100 percent of “cost” to out-of-state students, the Commission should continue to permit institutions to retain all revenues over 100 percent of cost for non-residents, and modify the policy to permit an institution to retain the first 10 percent of revenues over target revenues for resident students. (In other words, raise the limit from 5 percent to 10 percent.)

**Recommendation 5: Modify Step 9 of the MRR calculation by indexing targeted revenues for resident students to the percent of the MRR that is funded, and permit institutions to retain any amounts that would provide funding up to 100 percent of the MRR calculation.**

Under this recommendation, institutions would retain revenues, but in no case would an institution be permitted to retain more than the total amount of “need” as calculated by the MRR.

**Recommendation 6: Modify Step 9 of the MRR calculation so that no more than 100 percent of actual graduate student revenues are deducted from the MRR calculation of resource need.**

This change to practice would improve the revenue stream for all institutions with graduate students and would remove disincentives to attracting more resident or non-resident graduate students.

**Recommendation 7: Introduce legislation to remove the requirement that the public colleges and universities pay sales taxes.**

Removal of the sales tax requirement will “free up” over \$30 million that the colleges and universities currently are spending on sales taxes that could then be used to deliver services to the citizens of South Carolina.

**Recommendation 8: Provide additional waivers for the use of the colleges and universities.**

This change would permit colleges and universities to compete with their peers to attract additional students to improve the diversity of the student body, generate additional revenues for South Carolina businesses, and, in the long run, provide additional tax revenues to the State.

**Recommendation 9: Require consistent reporting of certain revenues and expenditures on the IPEDS financial surveys.**

The staff of the Commission should convene the chief financial officers of the institutions and, with their assistance, develop consistent IPEDS reporting standards. Consistent standards will reduce reporting inconsistencies between the South Carolina institutions and their peers.